

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.-59. (Cancelled)

60. (Previously Presented) A dendritic polymer of generation n composed of:

- a central core \S of valence m;
- generation chains branching around the core;
- an intermediate chain at the end of each bond around the core or at the end of each generation chain, where appropriate; and
- a terminal group at the end of each intermediate chain,

wherein m represents an integer from 3 to 8; n represents an integer from 0 to 12, wherein the generation chains are represented by the formula:



wherein

A'' represents an alkyl radical, an alkenyl radical or a alkynyl radical, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl; and wherein R and R', which are identical or different, each independently of the other represents a hydrogen atom or an -alkyl radical, an -aryl radical, or an -aralkyl radical, the intermediate chains, which are identical or different, are represented by formula



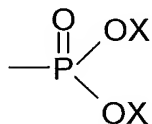
wherein

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents an aryl, heteroaryl or alkyl radical, each of which is optionally substituted by a halogen atom or by -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical;

L represents a hydrocarbon chain having from 1 to 6 chain members and optionally having one or more heteroatoms and/or optionally having one or more double or triple bonds, each of said chain members being optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl; and R and R', which are identical or different, each independently of the other represents a hydrogen atom or an -alkyl, -aryl, or -aralkyl radical; and

L' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl, where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an -aralkyl radical; and the terminal group consists of the group of formula:



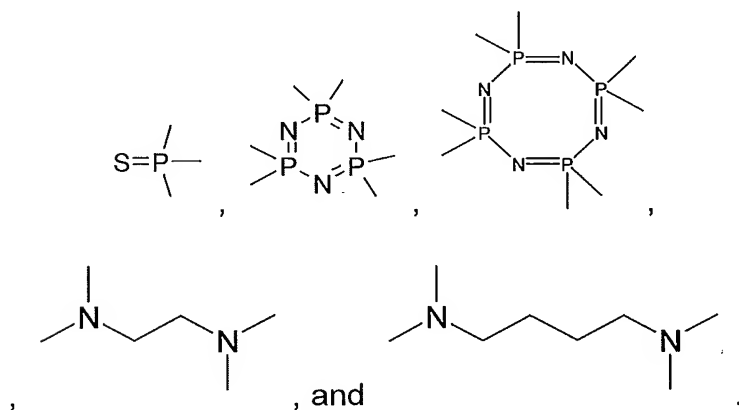
wherein each of the radicals X is a methyl group,

with the exception of the compound of formula:



61. (Previously Presented) A dendritic polymer according to claim 60, wherein the central core contains at least one phosphorus atom.

62. (Previously Presented) A dendritic polymer according to claim 60, wherein the central core is selected from the following groups:



63. (Previously Presented) A dendritic polymer according to claim 60, wherein the central core has the formula:



64. (Previously Presented) A dendritic polymer according to claim 60, having a DAB-AM, PAMAM, or PMMH structure.

65. (Cancelled)

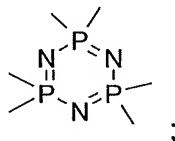
66. (Previously Presented) A dendritic polymer according to claim 77, wherein M is selected from sodium and potassium atoms.

67. (Previously Presented) A dendritic polymer according to claim 77, wherein n is from 0 to 3.

68-76. (Cancelled)

77. (Currently Amended) A dendritic polymer of generation n comprising:

(a) a central core having the formula:



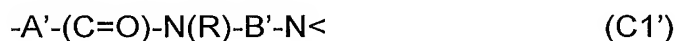
(b) generation chains branching around the core;

(c) an intermediate chain at the end of each bond around the core or at the end of each generation chain, where appropriate; and

(d) a terminal group at the end of each intermediate chain,

~~n represents an integer from 0 to 12,~~

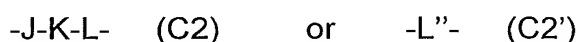
the generation chains are represented by the formula:



wherein

A' and B', each independently of the other, represent an alkyl radical, an alkenyl radical or an alkynyl radical, each of which is optionally substituted by one or more substituents selected from -alkyl, halogen atoms, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -aryl, and -aralkyl; and

R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an araalkyl radical the intermediate chains, which are identical or different, are represented by formula



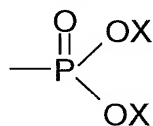
wherein

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents an aryl, heteroaryl or alkyl radical, each of which is optionally substituted by a halogen atom or by -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical;

L represents a hydrocarbon chain having from 1 to 6 chain members and optionally having one or more heteroatoms and/or optionally having one or more double or triple bonds, each of said chain members being optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl; and R and R', which are identical or different, each independently of the other represents a hydrogen atom or an -alkyl, -aryl, or -aralkyl radical; and

L'' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl, where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an -aralkyl radical; and further wherein the terminal group consists of the group of formula:



wherein each of the radicals X, which are identical or different, represents a radical -Me, -H and/or -M⁺, wherein M⁺ is a cation.

78. (Cancelled)

79. (Previously Presented) A dendritic polymer according to claim 60, wherein the generation chains are identical.

80. (Cancelled)

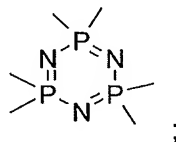
81. (Cancelled)

82. (Previously Presented) A dendritic polymer according to claim 60, wherein J represents an oxygen atom.

83. (Previously Presented) A dendritic polymer according to claim 60, wherein K represents a phenyl ring optionally substituted by a halogen atom or by an $-\text{NO}_2$, $-\text{NRR}'$, $-\text{CN}$, $-\text{CF}_3$, $-\text{OH}$, an $-\text{alkyl}$ radical, an $-\text{aryl}$ radical, or an $-\text{aralkyl}$ radical; where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an aralkyl radical.

84. (Previously Presented) A dendritic polymer according to claim 60, wherein K represents an unsubstituted phenyl ring.

85. (Previously Presented) A dendritic polymer of generation n comprising:
(a) a central core having the formula:



(b) optionally, generation chains branching around the core;

(c) an intermediate chain at the end of each bond around the core or at the end of each generation chain, where appropriate; and

(d) a terminal group at the end of each intermediate chain,

n represents an integer from 0 to 12,

the intermediate chains, which are identical or different, are represented by formula



wherein

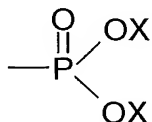
J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents an aryl, heteroaryl or alkyl radical, each of which is optionally substituted by a halogen atom or by -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical;

L represents an -alkyl-, -alkenyl- or -alkynyl- radical, each of which is optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl;

and

L' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl, where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an -aralkyl radical; and further wherein the terminal group consists of the group of formula:



wherein each of the radicals X, which are identical or different, represents a radical -Me, -H and/or -M⁺, wherein M⁺ represents a cation.

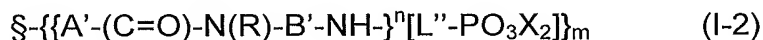
86. (Previously Presented) A dendritic polymer according to claim 85, wherein L represents an alkenyl radical or an alkyl radical, optionally substituted by a radical -OH.

87. (Previously Presented) A dendritic polymer according to claim 86, wherein L represents an alkyl radical optionally substituted by -OH.

88. (Cancelled)

89. (Cancelled)

90. (Previously Presented) A dendritic polymer represented by the formula (I-2):



in which:

\S represent a central core of valence m,

$-[A'-(C=O)-N(R)-B'-NH-]^n$ represents generation chains branching around the core,

L'' represents intermediate chains, and

$-PO_3X_2$ represents a terminal group at the end of each intermediate chain, wherein

A' and B' , each independently of the other, represent an alkyl radical, an alkenyl radical or an alkynyl radical, wherein said radicals may have one or more substituents selected from the group consisting of -alkyl radicals, halogen atoms, $-NO_2$, $-NRR'$, $-CN$, $-CF_3$, $-OH$, -Oalkyl radicals, -aryl radicals, and -aralkyl radicals;

L'' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from $-OH$, $-NRR'$, and -Oalkyl;

N represents a nitrogen atom;

P represents a phosphorus atom;

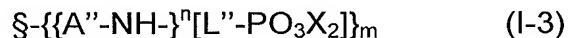
R and R' , which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an aralkyl radical.

X = methyl,

m represents an integer from 3 to 8, and

n represents an integer from 0 to 12.

91. (Previously Presented) A dendritic polymer represented by the formula (I-3):



in which:

\S represent a central core of valence m,

$[A''-NH-]$ represents generation chains branching around the core,

L'' represents intermediate chains, and

$-PO_3X_2$ represents a terminal group at the end of each intermediate chain,

wherein

A'' represents an alkyl radical, an alkenyl radical [[ro]] or an alkynyl radical, optionally substituted with one or more substituents selected from the group consisting of -alkyl, halogen atoms, -NO₂, -NRR', -CN, -CF₃, -OH, -Oalkyl, -Aryl, and -Aralkyl;

L'' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl;

N represents a nitrogen atom;

P represents a phosphorus atom;

R and R', which may be identical or different, each independently represent a hydrogen atom, an -alkyl radical, an -aryl radical, or an -aralkyl radical;

X = methyl,

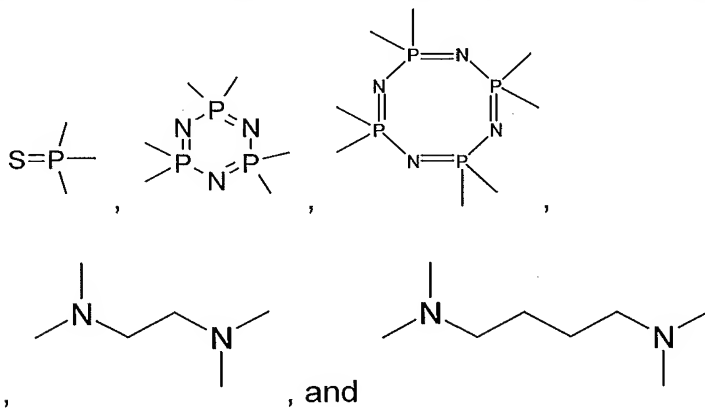
m represents an integer from 3 to 8, and

n represents an integer from 0 to 12.

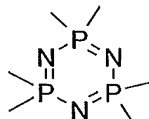
92-118. (Cancelled)

119. (Previously Presented) A dendritic polymer according to claim 141, wherein the central core contains at least one phosphorus atom.

120. (Previously Presented) A dendritic polymer according to claim 141, wherein the central core is selected from the following groups:



121. (Previously Presented) A dendritic polymer according to claim 141, wherein the central core has the formula:



122. (Previously Presented) A dendritic polymer according to claim 77, having a DAB-AM, PAMAM, or PMMH structure.

123. (Previously Presented) A dendritic polymer according to claim 77, wherein the generation chains are identical.

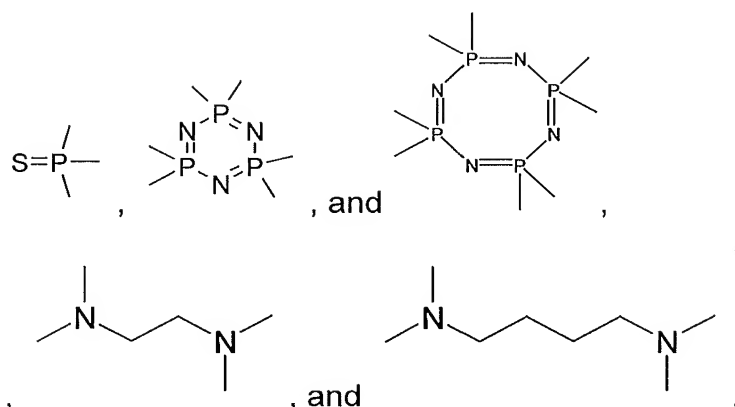
124. (Previously Presented) A dendritic polymer according to claim 77, wherein J represents an oxygen atom.

125. (Previously Presented) A dendritic polymer according to claim 77, wherein K represents a phenyl ring optionally substituted by a halogen atom or by an -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical; where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an aralkyl radical.

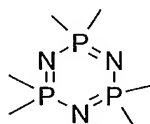
126. (Previously Presented) A dendritic polymer according to claim 77, wherein K represents an unsubstituted phenyl ring.

127. (Previously Presented) A dendritic polymer according to claim 135, wherein the central core contains at least one phosphorus atom.

128. (Previously Presented) A dendritic polymer according to claim 135, wherein the central core is selected from the following groups:



129. (Previously Presented) A dendritic polymer according to claim 135, wherein the central core has the formula:



130. (Previously Presented) A dendritic polymer according to claim 85, having a DAB-AM, PAMAM, or PMMH structure.

131. (Previously Presented) A dendritic polymer according to claim 85, wherein M is selected from sodium and potassium atoms.

132. (Previously Presented) A dendritic polymer according to claim 85, wherein n is from 0 to 3.

133. (Cancelled)

134. (Previously Presented) A dendritic polymer according to claim 85, wherein the generation chains are selected from linear and branched hydrocarbon chains having from 1 to 12 chain members and optionally having one or more double or triple bonds, each of said chain members optionally being selected from a heteroatom, an Aryl radical, a Heteroaryl radical, $>\text{C}=\text{O}$, and $>\text{C}=\text{NR}$, each chain

member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl,

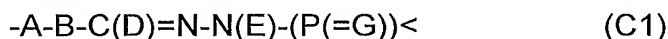
wherein

R and R', which are identical or different, each independently of the other represents a hydrogen atom, an alkyl radical, an aryl radical or an -aralkyl radical.

135. (Previously Presented) A dendritic polymer comprising:

- (a) a central core § of valence m;
- (b) generation chains branching around the core;
- (c) an intermediate chain at the end of each bond around the core or at the end of each generation chain, where appropriate; and
- (d) a terminal group at the end of each intermediate chain,

wherein m represents an integer from 3 to 8; n represents an integer from 0 to 12, wherein the generation chains, which are identical or different, are represented by the formula:



wherein:

A represents an oxygen, sulfur or phosphorus atom or a radical -NR-;

B represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

C represents a carbon atom,

D and E, which are identical or different, each independently of the other represents a hydrogen atom, a radical -Alkyl, -OAlkyl, -Aryl, or -Aralkyl, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

G represents a sulfur, oxygen, selenium or tellurium atom or a radical =NR;

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl; and
< represents the two bonds at the end of each generation chain,

the intermediate chains, which are identical or different, are represented by formula



wherein

J represents an oxygen atom, a sulfur atom or a radical -NR-;

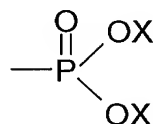
K represents an aryl, heteroaryl or alkyl radical, each of which is optionally substituted by a halogen atom or by -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical;

L represents an -alkyl-, -alkenyl- or -alkynyl- radical, each of which is optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl;

and

L' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl, where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an -aralkyl radical;

and further wherein the terminal group consists of the group of formula:



wherein each of the radicals X, which are identical or different, represents a radical -Me, -H and/or -M⁺, wherein M⁺ represents a cation.

136. (Previously Presented) A dendritic polymer according to claim 85, wherein the generation chains are represented by the formula:



wherein

A'' represents an alkyl radical, an alkenyl radical or a alkynyl radical, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl; and wherein R and R', which are identical or different, each independently of the other represents a hydrogen atom or an -alkyl radical, an -aryl radical, or an -aralkyl radical.

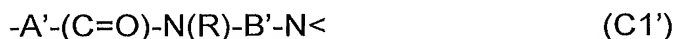
137. (Previously Presented) A dendritic polymer according to claim 85, wherein the generation chains are identical.

138. (Previously Presented) A dendritic polymer according to claim 85, wherein J represents an oxygen atom.

139. (Previously Presented) A dendritic polymer according to claim 85, wherein K represents a phenyl ring optionally substituted by a halogen atom or by an -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical; where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an aralkyl radical.

140. (Previously Presented) A dendritic polymer according to claim 85, wherein K represents an unsubstituted phenyl ring.

141. (Previously Presented) A dendritic polymer of generation n comprising:
 (a) a central core § of valence m;
 (b) generation chains branching around the core;
 (c) an intermediate chain at the end of each bond around the core or at the end of each generation chain, where appropriate; and
 (d) a terminal group at the end of each intermediate chain,
 wherein m represents an integer from 3 to 8; n represents an integer from 0 to 12,
 the generation chains are represented by the formula:



wherein

A' and B', each independently of the other, represent an alkyl radical, an alkenyl radical or an alkynyl radical, each of which is optionally substituted by one or more substituents selected from -alkyl, halogen atoms, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -aryl, and -aralkyl; and

R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an aralkyl radical
 the intermediate chains, which are identical or different, are represented by formula



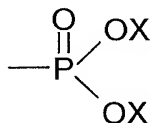
wherein

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents an aryl, heteroaryl or alkyl radical, each of which is optionally substituted by a halogen atom or by -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical;

L represents a hydrocarbon chain having from 1 to 6 chain members and optionally having one or more heteroatoms and/or optionally having one or more double or triple bonds, each of said chain members being optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl; and R and R', which are identical or different, each independently of the other represents a hydrogen atom or an -alkyl, -aryl, or -aralkyl radical; and

L'' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl, where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an -aralkyl radical; and further wherein the terminal group consists of the group of formula:



where X = methyl.

142. (Previously Presented) A dendritic polymer comprising:

- (a) a central core § of valence m;
- (b) optionally, generation chains branching around the core;
- (c) an intermediate chain at the end of each bond around the core or at the end of each generation chain, where appropriate; and
- (d) a terminal group at the end of each intermediate chain,

wherein m represents an integer from 3 to 8; n represents an integer from 0 to 12, the intermediate chains, which are identical or different, are represented by formula



wherein

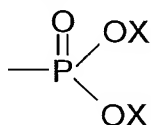
J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents an aryl, heteroaryl or alkyl radical, each of which is optionally substituted by a halogen atom or by -NO₂, -NRR', -CN, -CF₃, -OH, an -alkyl radical, an -aryl radical, or an -aralkyl radical;

L represents an -alkyl-, -alkenyl- or -alkynyl- radical, each of which is optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl;

and

L' represents an -alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -Oalkyl, where R and R', which may be identical or different, each independently represent a hydrogen atom, an alkyl radical, an aryl radical or an -aralkyl radical; and further wherein the terminal group consists of the group of formula:



wherein X = methyl.

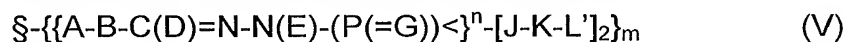
143-145. (Cancelled)

146. (New) A method for preparing a dendritic polymer according to claim 60, comprising:

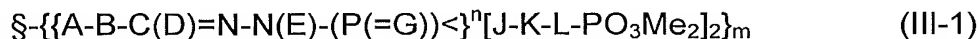
- (i) reacting the corresponding dendritic polymer having a terminal function -CHO, -CH=NR or (P(=S)Cl₂ with a compound of formula Z-PO₃Me₂,
wherein Z represents either -H, when the terminal function is -CHO or -CH=NR, or the intermediate chain defined above when the terminal function is -(P(=S)Cl₂;
- (ii) optionally followed, when X represents H or M, by a step which comprises converting the dendritic polymer obtained in step (i) having a -PO₃Me₂ terminal group into the corresponding dendritic polymer having a -PO₃H₂ terminal group;
- (iii) optionally followed, when X represents M, by a step which comprises converting the dendritic polymer obtained in (ii) having a -PO₃H₂ terminal

group into the salt of the corresponding dendritic polymer having a $-\text{PO}_3\text{M}_2$ terminal group.

147 (New) A method for preparing a dendritic polymer according to claim 83, wherein said method comprises reacting a compound of formula (V)



with $\text{H-PO}_3\text{Me}_2$ to obtain a compound of formula (III-1)

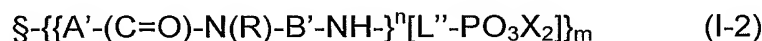


wherein \S , A, B, C, D, E, G, N, P, J, K, L, L', m, n, and < have the meanings defined in claim 60, and

wherein said reaction is carried out in the presence of an organic or inorganic base, at a temperature of from -80°C to 100°C .

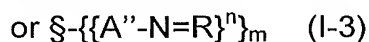
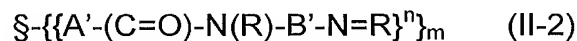
148. (New) A method according to claim 147, wherein the base is triethylamine.

149. (New) A method for preparing a dendritic polymer according to claim 90 of formula (I-2)



in which \S , A', B', C, A'', N, P, X, L'', m, and n have the meanings defined in claim 90, comprising

step (i), which comprises reacting the corresponding dendritic polymer n of formula

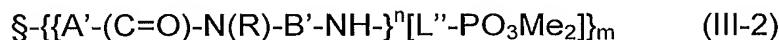


wherein R is a radical $>\text{Alkyl}$,

with a compound of the formula $\text{H-PO}_3\text{Me}_2$ (VI),

(ii) optionally followed, when X represents H or M, by a step which comprises converting the dendritic polymer of formula (III-2) or (III-3) obtained in (i) in which X represents a methyl radical into the corresponding dendritic polymer of formula (I-2)

or (I-3) in which X represents a hydrogen atom, according to the following reaction scheme:



(iii) optionally followed, when X represents M, by a step which comprises converting the dendritic polymer of formula (IV-2) or (IV-3) obtained in (ii) into the corresponding salt.

150. (New) A method according to claim 149, wherein step (i) is carried out in the presence of an organic or inorganic base, at a temperature of from -80°C to 100°C.

151. (New) A method according to claim 149, wherein reaction (ii) is carried out:

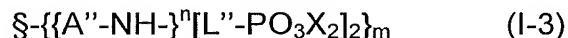
- by the action of a trimethylsilane halide, in a polar aprotic organic solvent,
- followed by the action of anhydrous MeOH, which is added to the reaction mixture.

152. (New) A method according to claim 149, wherein the trimethylsilane halide is Me₃SiBr.

153. (New) A method according to claim 149, wherein step (iii) comprises a reaction in which the compounds of formula (IV) are made to act in the presence of a base.

154. (New) A method according to claim 153, wherein the base is selected from sodium hydroxide and potassium hydroxide.

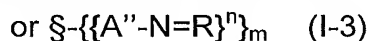
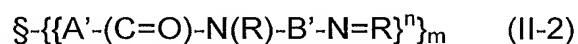
155. (New) A method for preparing a dendritic polymer according to claim 91 of formula (I-3)



in which \S , A', B', C, A'', N, P, X, L'', m, and n have the meanings defined in claim 91,

comprising

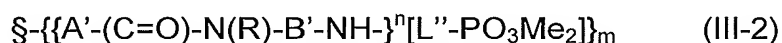
step (i), which comprises reacting the corresponding dendritic polymer n of formula



wherein R is a radical >Alkyl,

with a compound of the formula $\text{H}-\text{PO}_3\text{Me}_2$ (VI),

(ii) optionally followed, when X represents H or M, by a step which comprises converting the dendritic polymer of formula (III-2) or (III-3) obtained in (i) in which X represents a Methyl radical into the corresponding dendritic polymer of formula (I-2) or (I-3) in which X represents a hydrogen atom, according to the following reaction scheme:



(iii) optionally followed, when X represents M, by a step which comprises converting the dendritic polymer of formula (IV-2) or (IV-3) obtained in (ii) into the corresponding salt.

156. (New) A method according to claim 155, wherein step (i) is carried out in the presence of an organic or inorganic base, at a temperature of from -80°C to 100°C .

157. (New) A method according to claim 155, wherein reaction (ii) is carried out:

- by the action of a trimethylsilane halide, in a polar aprotic organic solvent,
- followed by the action of anhydrous MeOH, which is added to the reaction mixture.

158. (New) A method according to claim 157, wherein the trimethylsilane halide is Me₃SiBr.

159. (New) A method according to claim 155, wherein step (iii) comprises a reaction in which the compounds of formula (IV) are made to act in the presence of a base.

160. (New) A method according to claim 159, wherein the base is selected from sodium hydroxide and potassium hydroxide.

161. (New) A method for treating surfaces, said method comprising contacting said surfaces with a composition comprising a dendritic polymer according to claim 60.

162. (New) A method according to claim 161, wherein said surfaces are metal, silicon-based or oxides.